

# ***Interactive comment on* “The Impacts of Biomass Burning Activities on Convective Systems in the Maritime Continent” by Hsiang-He Lee and Chien Wang**

## **Anonymous Referee #3**

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The authors attempt to investigate the fire aerosol-cloud-precipitation interactions by conducting modeling sensitivity studies. The performance of WRF-CHEM simulations were fully evaluated, and the responses of cloud microphysics and precipitation amount to fire aerosols were carefully quantified. However, I still have some minor issues about this work prior to its publication.

1. In the discussions in sections 3.1 and 3.2, it appears that the responses of cloud microphysics properties and precipitation to fire aerosols are sensitive to convection intensity of the systems selected for case studies, but the authors didn't show what are the criteria to determine the systems are convective weak. At least, some ba-

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sic description about the selected convective systems should be provided so that the readership could have some sense about the convection strength of each system.

2. Related to point 1, is that possible to do statistical analysis of fire periods for weak and strong convective systems separately? Since the weak systems are more sensitive to fire aerosols, I would expect that there might be more significant differences in cloud properties or precipitation between fire aerosol case and non-fire aerosol case when looking at those weak systems.

3. Are the fire periods shown in Table 2 the time periods during which the fire aerosols are continuously emitted into atmosphere? I just want to make sure that the cloud systems selected for statistics of fire season are those which were indeed influenced by fire aerosols. That means the selected cloud systems for analysis concurrently occurred with fire events.

4. Please add uncertainties of precipitation for each case in Figure 9.

5. In section 3.4, the impacts of fire aerosols on local circulations like land/sea breeze are not evident. Some figures like the mean wind fields for fire aerosol and non-fire aerosol cases to show their difference would be helpful.

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